

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-035847

(43)Date of publication of application : 02.02.2000

(51)Int.Cl.

G06F 3/00  
G06F 3/14

(21)Application number : 10-203222

(71)Applicant : SHARP CORP

(22)Date of filing : 17.07.1998

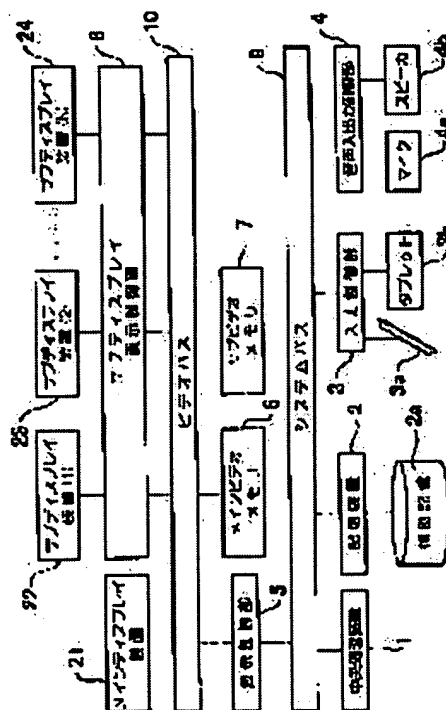
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## (54) MULTIPLE SCREEN CONTROLLABLE INFORMATION PROCESSOR

## (57)Abstract:

PROBLEM TO BE SOLVED: To improve the convenience of a main display device and plural sub display devices which are mutually connected.

SOLUTION: A display controlling part 5 and a sub display controlling part 8 perform control in such a way that plural application window images shown on the screen of a main display device 21 are individually shown on the screens of plural sub display devices 22 to 24 and also that one application window image shown on the screen of the device 21 is respectively shown on the screens of the plural devices 22 to 24. Also, they perform control such a way that they select one application window image among plural application window images shown on the device 21 and designate a sub display device on which the selected application window image is shown.



## LEGAL STATUS

[Date of request for examination] 27.07.2001

[Date of sending the examiner's decision of rejection] 29.03.2005

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the information processors (for example, POS, a personal computer, a pen computer, a word processor, a workstation, etc.) which can connect two or more sets of displays, and relates to the information processor [ a detail ] which can control many screens more.

[0002]

[Description of the Prior Art] Although the conventional information processor assumes one user fundamentally, TV conference system using communication facility is one of things for use by plurality.

[0003] Moreover, although what performs the display with same Maine display unit and sub display unit is common conventionally when performing many screen control, the information processor which enabled it to operate two or more sets of display units as one screen and in which many screen control is possible is also proposed.

[0004] For example, a thing given in JP,6-282405,A controls a participant graphic display window legible, it detects a communication link participant's participating condition, determines the suitable display gestalt of a participant graphic display window, and controls a window in the determined display gestalt.

[0005] Moreover, a thing given in JP,6-311428,A makes these actuation easy to perform by showing clearly which screen the target screen is by onscreen display, when performing selection of the screen at the time of carrying out many screen display, a switch, the switch to a single screen display from many screen display, etc.

[0006] Moreover, a thing given in JP,6-332653,A enables it to grasp the operating state of an application program timely by aiming at improvement in the working efficiency at the time of a switch of an application program window, and preparing the subwindow which always displays the current operating state list corresponding to all application programs.

[0007]

[Problem(s) to be Solved by the Invention] When the information processor in which such conventional many screen control is possible was used in the location which performs for example, counter business, there were various problems shown below.

[0008] Since the screen by the side of a customer is the same as the screen by the side of an operator or each screen is not interlocking, a smooth dialogue cannot be performed. When information not to show a customer and information without the need of showing are in the screen of an operator side display unit (henceforth the Maine display unit), it cannot display only required information on a customer side display unit (henceforth a sub display unit). It cannot display separately only information required for two or more sub display units. Or the same screen as two or more sub display units cannot be displayed. In the Maine display unit, the contents of a display of two or more sub display units cannot be quickly switched by one-touch. The field of arbitration specified on the Maine display unit cannot be efficiently displayed on a sub display unit. Alternative actuation of the actuation with the Maine display unit cannot be carried out with a sub display unit. In the Maine display unit and a sub display unit, expansion of the screen displayed on other display units and contraction cannot be performed.

[0009] This invention is originated that such a trouble should be solved. The purpose Enable the display only of required information to a sub display unit, and the display only of information required for two or more sub display units is enabled separately. Enable a display of the same screen as two or more sub display units, and the switch of the contents of a display of two or more sub display units is quickly enabled by one-touch. The display of the field of arbitration specified on the Maine display unit is enabled efficiently at a sub display unit.

actuation with the Maine display unit -- a sub display unit -- substitution -- it is in offering the information processor which presupposed that it is operational and enabled expansion of the screen displayed on other display units in the display unit of arbitration, and contraction and in which many screen control is possible.

[0010]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, the information processor in which the many screen control of this invention according to claim 1 is possible When using one set of the indicating equipment of arbitration as the Maine display unit and using two or more sets of other indicating equipments as a sub display unit in the information processor which can connect two or more indicating equipments, respectively, Two or more two or more application window screens displayed by the multi-window function on the screen of said Maine display unit are considered as the configuration equipped with said individual display means to display according to an individual on the screen of the sub display unit of a base.

[0011] Moreover, the information processor in which the many screen control of this invention according to claim 2 is possible considers one application window screen displayed on the screen of said Maine display unit in a thing according to claim 1 as the configuration equipped with said single display means to display [ two or more ] on the screen of the sub display unit of a base, respectively.

[0012] Moreover, the information processor in which the many screen control of this invention according to claim 3 is possible is considered as the configuration equipped with a screen selection means to choose one application window screen from two or more application window screens displayed on said Maine display unit by the multi-window function, and an equipment assignment means to specify the sub display unit on which the application window screen chosen by this screen selection means is displayed, in a thing according to claim 1 or 2.

[0013] Moreover, the information processor in which the many screen control of this invention according to claim 4 is possible is considered as the configuration equipped with an equipment assignment means to specify the sub display unit on which the application window screen currently displayed on the field specified by block-definition means to specify the field on a screen as said Maine display unit, and this block-definition means is displayed, in a thing according to claim 1, 2, or 3.

[0014] Moreover, the information processor in which the many screen control of this invention according to claim 5 is possible is considered as the configuration equipped with a transference means to transfer the actuation function of said screen selection means and an equipment assignment means from the Maine display unit to the sub display unit of arbitration, in a thing according to claim 3.

[0015] Moreover, the information processor in which the many screen control of this invention according to claim 6 is possible is considered as the configuration equipped with a transference means to transfer the actuation function of said block-definition means and an equipment assignment means from the Maine display unit to the sub display unit of arbitration, in a thing according to claim 4.

[0016] Moreover, the information processor in which the many screen control of this invention according to claim 7 is possible is considered as the configuration equipped with a contraction/expansion means to reduce or expand the application window screen displayed on the screen of other display units to the sub display unit to which the Maine display unit or the actuation function was transferred, in a thing according to claim 1, 2, 3, 4, 5, or 6.

[0017]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained with reference to a drawing.

[0018] Drawing 1 is the block diagram showing the system configuration of the information processor in which the many screen control of this invention is possible.

[0019] This information processor is fundamentally equipped with the voice-input/output control section 4 for controlling the input-control section 3 and microphone 4a which control the input of pointing devices, such as a central processing unit 1, the store 2 containing auxiliary storage unit 2a, pen 3a, and tablet 3b, and loudspeaker 4b, and two or more sets of the Maine display unit 21 and the sub display units 22, 23, ..., 24 are connected. Therefore, it has the subdisplay display and control section 8 for controlling the subvideo memory 7 for mapping the Maine video memory 6 for mapping the display and control section 5 for controlling each display unit 21-24, and the contents of a display of the Maine display unit 21, and the contents of a display of the sub display units 22-24, and the sub display units 22-24, these control sections and equipment are bidirectionally

connected by a system bus 9 and the video bus 10, respectively, and data communication can be mutually performed now.

[0020] Drawing 2 shows the basic software configuration of the information processor in which the many screen control of this invention is possible.

[0021] Two or more applications 31-33 are controlled by basic software 34, such as OS (operating system). Basic software 34 consists of display control drivers 37 for controlling the other device control driver 36 for controlling the secondary memory driver 35 for controlling a central processing unit 1 and the control device 2 containing auxiliary storage unit 2a, the voice-input/output control section 4, etc., and a display and control section 5, and the display control driver 37 is equipped with the subdisplay control driver 39 for controlling the pointing device control driver 38 and the subdisplay display and control section 8 for controlling the input-control section 3.

[0022] Drawing 3 shows the example of a configuration of the Maine video memory 6. The display information memory area 62 which registers the display information which the sign 61 in drawing shows the memory area of the Maine video memory, and is displayed on the Maine display unit 21. The individual memory areas 63, 64, and 65 which secure all the data displayed by the applications 31, 32, and 33 matched with the application windows 62a, 62b, and 62c displayed into it according to an individual. It consists of a carbon button information memory area 66 which registers the carbon button information for displaying on a screen the manual operation button mentioned later, a memory area 67 which registers the Maine display control information, and a memory area 68 which registers subdisplay control information. However, the contents shown in drawing 3 show the condition of having registered the contents of the example of a display shown in drawing 12 mentioned later.

[0023] Drawing 4 shows the example of a configuration of the subvideo memory 7. The sign 71 in drawing shows the memory area of subvideo memory. The display information memory areas 74, 76, and 78 which register the display information following the header information memory areas 73, 75, and 77 which register the header information of the number corresponding to the connected sub display units 22, 23, and 24, respectively, and these header information, respectively. It consists of memory areas 72 which register subvideo control information including the format information whether the display information registered into which sub display units 22, 23, and 24 in which display information memory areas 74, 76, and 78 is displayed etc. However, the contents shown in drawing 4 show the condition of having registered the contents of the example of a display shown in drawing 9 or drawing 10 mentioned later.

[0024] Drawing 5 is a flow chart explaining the fundamental control action in the information processor of such a configuration.

[0025] If multi-screen-display control action is started, a display and control section 5 will start actuation (step S1), and each applications 31, 32, and 33 of the basic software configuration shown in drawing 2 will be performed by the display control driver 37 through basic software 34. And if modification is shown in a screen display (step S2) (i.e., if refreshed), based on the modification information, the display information after changing into the subvideo memory 7 will be transmitted (step S3). The transmitted display information is stored in the predetermined field in the subvideo memory 7 (step S4). Moreover, the subdisplay display and control section 8 changes a screen display to each sub display units 22, 23, and 24 according to the display information on the subvideo memory 7 transmitted whenever the transfer of the display information on the subvideo memory 7 occurred in the display and control section 5 (step S5). Such processing is repeated until the control action of many screen display is completed (step S6).

[0026] Next, the multi-screen-display control action in the information processor of the above-mentioned configuration is concretely explained with reference to drawing 6 thru/or drawing 12.

[0027] Drawing 6 shows the example which displayed two or more application window screens 21a, 21b, and 21c displayed on the screen of the Maine display unit 21 according to the individual on the screen of each sub display units 22, 23, and 24, and supports claim 1.

[0028] That is, application window screen 21a is displayed on the screen of the sub display unit 22, application window screen 21b is displayed on the screen of the sub display unit 23, and application window screen 21c is displayed on the screen of the sub display unit 24. In this case, the header information of the sub display unit 22 is registered into the subvideo memory 7 in the header information memory area 73. The information on application window screen 21a displayed on the display information memory area 74 following this by application 31 is registered. The header information of the sub display unit 23 is registered into the header

information memory area 75. The information on application window screen 21b displayed on the display information memory area 76 following this by application 32 is registered. The header information of the sub display unit 24 is registered into the header information memory area 77, and the information on application window screen 21c displayed on the display information memory area 78 following this by application 33 is registered.

[0029] Drawing 7 shows the example which displayed one application window screen 21c in two or more application window screens 21a, 21b, and 21c displayed on the screen of the Maine display unit 21 on the screen of each sub display units 22, 23, and 24, respectively, and supports claim 2.

[0030] In this case, the header information of the sub display unit 22 is registered into the subvideo memory 7 in the header information memory area 73. The information on application window screen 21c displayed on the display information memory area 74 following this by application 33 is registered. The header information of the sub display unit 23 is registered into the header information memory area 75. The information on application window screen 21c displayed on the display information memory area 76 following this by application 33 is registered. The header information of the sub display unit 24 is registered into the header information memory area 77, and the information on application window screen 21c displayed on the display information memory area 78 following this by application 33 is registered.

[0031] Drawing 8 shows the example which displayed two or more application window screens 21a, 21b, and 21c displayed on the screen of the Maine display unit 21 according to the individual on the screen of each sub display units 22, 23, and 24, and supports claim 3. Here, if the identifier of D2 and the sub display unit 24 is set [ the identifier of the sub display unit 22 ] to D3 for the identifier of D1 and the sub display unit 23, the title screens 211, 212, and 213 in which it is shown on which sub display units 22, 23, and 24 the screen is displayed are displayed on each application window screens 21a, 21b, and 21c displayed on the Maine display unit 21.

[0032] Namely, (W1=D3) of the title screen 211 It is shown that application window screen 21a (application window identifier W1) is displayed on the sub display unit 24 (subdisplay identifier D3). (W2=D2) of the title screen 212 shows that application window screen 21b (application window identifier W2) is displayed on the sub display unit 23 (subdisplay identifier D2). (W3=D1) of the title screen 213 shows that application window screen 21c (application window identifier W3) is displayed on the sub display unit 22 (subdisplay identifier D1).

[0033] Moreover, the [D1] carbon button 214 currently displayed on the Maine display unit 21, the [D2] carbon button 215, and the [D3] carbon button 216 are carbon buttons which specify which application window screens 21a, 21b, and 21c are displayed on which sub display units 22, 23, and 24. That is, the application window screens 21a, 21b, and 21c displayed on the sub display units 22, 23, and 24 can be specified by using pointing devices, such as pen 3a and tablet 3b, and operating the application window screens 21a, 21b, and 21c and each carbon buttons 214, 215, and 216 by turns. For example, when saying in the example of drawing, as a result of touching application window screen 21a by pen 3a etc. and then touching the [D3] carbon button 216, (W1=D3) is displayed on the title screen 212 of application window screen 21a, and application window screen 21a is displayed on the sub display unit 24.

[0034] Two or more application window screen 21a as which drawing 9 was displayed on the screen of the Maine display unit 21, While displaying the application window screens 21b and 21c according to an individual on the screen of each corresponding sub display units 23 and 24 among 21b and 21c The example which displayed the information on the field (a broken line shows) 71 specified on the screen of the Maine display unit 21 on the screen of the sub display unit 22 is shown, and claim 4 is supported.

[0035] That is, it is shown that the field 71 shown with the broken line all over the display screen of the Maine display unit 21 is a field which chose the information displayed on the sub display unit 22. On the occasion of selection, the field 71 to a location E is specified from the start location S with pointing devices, such as pen 3a and tablet 3b. If the [D1] carbon button 214 is pushed at this time, the information on the field 71 of the Maine display unit 21 will be displayed on the sub display unit 22. That is, if the [D2] carbon button 215 is pushed, the information on the field 71 of the Maine display unit 21 will be displayed on the sub display unit 23, and if the [D3] carbon button 216 is pushed, the information on the field 71 of the Maine display unit 21 will be displayed on the sub display unit 24.

[0036] The sub display unit 22 shows the example used as the candidate for actuation, respectively, and the example from which, as for drawing 10, the Maine display unit 21 serves as a candidate for actuation, and drawing 11 support claims 5 and 6.

[0037] That is, by operating the [Swap] carbon button 217 and the [D1] carbon button 214 which were prepared on the screen of the Maine display unit 21 shown in drawing 10, as the whole display screen of the Maine display unit 21 shown in drawing 10 shows drawing 11, screen transition (actuation transference) is carried out to the sub display unit 22, and screen transition of the display screen of the sub display unit 22 shown in drawing 10 is carried out at the Maine display unit 21 shown in drawing 11.

[0038] At this time, as shown in the screen of the sub display unit 22 at drawing 11, MD1 which is the identifier of the Maine display unit 21 is displayed on the location which existed under the [D1] carbon button 214 as [MD1] carbon button 214'. Moreover, the sub display unit 22 will work as a Maine display unit in this case, and the Maine display unit will work as a sub display unit. This becomes possible [ that if it was operated on the screen of the Maine display unit 21 operates the display information on other display units 21, 23, and 24 similarly ] by operating it on the screen of the sub display unit 22.

[0039] In addition, screen transition (actuation transference) of the whole display screen of the sub display unit 22 can be carried out to other display units (sub display unit 23) by operating the [Swap] carbon button 217 on the screen of the sub display unit 22, and other carbon buttons (for example, [D2] carbon button 215).

[0040] Two or more application window screen 21a as which drawing 12 was displayed on the screen of the Maine display unit 21, While displaying the application window screens 21b and 21c according to an individual on the screen of each corresponding sub display units 23 and 24 among 21b and 21c The example which displayed the information on the field 71 specified on the screen of the Maine display unit 21 on the screen of the sub display unit 22 is shown, and claim 7 is supported.

[0041] That is, [contraction] carbon button 218 and [expansion] carbon button 219 which reduce the application window screen displayed on the screen of each sub display units 22, 23, and 24, and are expanded beside the [Swap] carbon button 217 prepared on the screen of the Maine display unit 21 are prepared.

[0042] Actuation of [contraction] carbon button 218 and [expansion] carbon button 219 is performed as follows. That is, if [D1] carbon button is operated after operating [contraction] carbon button 218 or [expansion] carbon button 219 (to or actuation and coincidence), the display of the sub display unit 22 will be reduced or expanded. Moreover, after operating [contraction] carbon button 218 or [expansion] carbon button 219, if [D2] carbon button is operated (to or actuation and coincidence), the display of the sub display unit 23 will be reduced or expanded, and after operating [contraction] carbon button 218 or [expansion] carbon button 219, if [D3] carbon button is operated (to or actuation and coincidence), the display of the sub display unit 24 will be reduced or expanded.

[0043]

[Effect of the Invention] The information processor in which the many screen control of this invention according to claim 1 is possible can display only required information on the sub display unit by the side of a customer, when there are information which does not want to show them to a customer on the screen of the Maine display unit since two or more application window screens displayed by the multi-window function on the screen of the Maine display unit were constituted so that it might display according to an individual on two or more sets of the screens of a sub display unit, and information without the need of showing. Moreover, only information required for two or more sub display units can be displayed separately.

[0044] Moreover, since the information processor in which the many screen control of this invention according to claim 2 is possible constituted one application window screen displayed on the screen of the Maine display unit so that it might display on two or more sets of the screens of a sub display unit, respectively, it can display the same screen as two or more sub display units.

[0045] Moreover, since the information processor in which the many screen control of this invention according to claim 3 is possible was constituted so that one application window screen might be chosen as the Maine display unit from two or more application window screens displayed by the multi-window function and this selected application window screen might be displayed on it, it can switch quickly the contents of a display of two or more sub display units by one-touch in the Maine display unit.

[0046] Moreover, since the information processor in which the many screen control of this invention according to claim 4 is possible considered as the configuration equipped with an equipment assignment means specify the sub display unit on which the application window screen currently displayed on the field specified by block-definition means specify the field on a screen as the Maine display unit, and this block-definition means is displayed, it can display efficiently on a sub display unit the field of arbitration which specified on the Maine display unit.

[0047] Moreover, since the information processor in which the many screen control of this invention according to claim 5 is possible was considered as the configuration equipped with a transference means to transfer the actuation function of a screen selection means and an equipment assignment means from the Maine display unit to the sub display unit of arbitration, it can carry out alternative actuation of the actuation with the Maine display unit with a sub display unit.

[0048] Moreover, since the information processor in which the many screen control of this invention according to claim 6 is possible was considered as the configuration equipped with a transference means to transfer the actuation function of a block-definition means and an equipment assignment means from the Maine display unit to the sub display unit of arbitration, it can carry out alternative actuation of the actuation with the Maine display unit with a sub display unit.

[0049] Moreover, since the information processor in which the many screen control of this invention according to claim 7 is possible was considered as the configuration equipped with a contraction/expansion means to reduce or expand the application window screen displayed on the screen of other display units to the sub display unit to which the Maine display unit or the actuation function was transferred, it can perform expansion of the screen displayed on other display units, and contraction in the Maine display unit and a sub display unit.

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[Translation done.]



JAPANESE

[JP,2000-035847,A]

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CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE INVENTION  
TECHNICAL PROBLEM MEANS DESCRIPTION OF DRAWINGS DRAWINGS

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CLAIMS

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[Claim(s)]

[Claim 1] The information processor which is characterized by to have said individual display means display [ two or more ] according to an individual on the screen of the sub display unit of a base for two or more application window screens displayed by the multi-window function on the screen of said Maine display unit when using one set of the indicating equipment of arbitration as the Maine display unit and using two or more sets of other indicating equipments as a sub display unit in the information processor which can connect two or more indicating equipments , respectively and in which many screen control is possible .

[Claim 2] The information processor which comes to have [ said single display means to display / two or more / on the screen of the sub display unit of a base, respectively ] one application window screen displayed on the screen of said Maine display unit and in which many screen control according to claim 1 is possible.

[Claim 3] The information processor which comes to have a screen selection means to choose one application window screen from two or more application window screens displayed on said Maine display unit by the multi-window function, and an equipment assignment means to specify the sub display unit on which the application window screen chosen by this screen selection means is displayed and in which many screen control according to claim 1 or 2 is possible.

[Claim 4] The information processor which comes to have an equipment assignment means to specify the sub display unit on which the application window screen currently displayed on the field specified by block-definition means to specify the field on a screen as said Maine display unit, and this block-definition means is displayed and in which many screen control according to claim 1, 2, or 3 is possible.

[Claim 5] The information processor which comes to have a transference means to transfer the actuation function of said screen selection means and an equipment assignment means from the Maine display unit to the sub display unit of arbitration and in which many screen control according to claim 3 is possible.

[Claim 6] The information processor which comes to have a transference means to transfer the actuation function of said block-definition means and an equipment assignment means from the Maine display unit to the sub display unit of arbitration and in which many screen control according to claim 4 is possible.

[Claim 7] The information processor which comes to have a contraction/expansion means to reduce or expand the application window screen displayed on the screen of other display units to the sub display unit to which the Maine display unit or the actuation function was transferred and in which many screen control according to claim 1, 2, 3, 4, 5, or 6 is possible.

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TECHNICAL FIELD

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PRIOR ART

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## EFFECT OF THE INVENTION

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[Effect of the Invention] The information processor in which the many screen control of this invention according to claim 1 is possible can display only required information on the sub display unit by the side of a customer, when there are information which does not want to show them to a customer on the screen of the Maine display unit since two or more application window screens displayed by the multi-window function on the screen of the Maine display unit were constituted so that it might display according to an individual on two or more sets of the screens of a sub display unit, and information without the need of showing. Moreover, only information required for two or more sub display units can be displayed separately.

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**TECHNICAL PROBLEM**

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[Problem(s) to be Solved by the Invention] When the information processor in which such conventional many screen control is possible was used in the location which performs for example, counter business, there were various problems shown below.

[0008] Since the screen by the side of a customer is the same as the screen by the side of an operator or each screen is not interlocking, a smooth dialogue cannot be performed. When information not to show a customer and information without the need of showing are in the screen of an operator side display unit (henceforth the Maine display unit), it cannot display only required information on a customer side display unit (henceforth a sub display unit). It cannot display separately only information required for two or more sub display units. Or the same screen as two or more sub display units cannot be displayed. In the Maine display unit, the contents of a display of two or more sub display units cannot be quickly switched by one-touch. The field of arbitration specified on the Maine display unit cannot be efficiently displayed on a sub display unit. Alternative actuation of the actuation with the Maine display unit cannot be carried out with a sub display unit. In the Maine display unit and a sub display unit, expansion of the screen displayed on other display units and contraction cannot be performed.

[0009] This invention is originated that such a trouble should be solved. The purpose Enable the display only of required information to a sub display unit, and the display only of information required for two or more sub display units is enabled separately. Enable a display of the same screen as two or more sub display units, and the switch of the contents of a display of two or more sub display units is quickly enabled by one-touch. The display of the field of arbitration specified on the Maine display unit is enabled efficiently at a sub display unit. actuation with the Maine display unit -- a sub display unit -- substitution -- it is in offering the information processor which presupposed that it is operational and enabled expansion of the screen displayed on other display units in the display unit of arbitration, and contraction and in which many screen control is possible.

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[Translation done.]

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MEANS

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[Means for Solving the Problem] In order to solve the above-mentioned technical problem, the information processor in which the many screen control of this invention according to claim 1 is possible When using one set of the indicating equipment of arbitration as the Maine display unit and using two or more sets of other indicating equipments as a sub display unit in the information processor which can connect two or more indicating equipments, respectively, Two or more two or more application window screens displayed by the multi-window function on the screen of said Maine display unit are considered as the configuration equipped with said individual display means to display according to an individual on the screen of the sub display unit of a base.

[0011] Moreover, the information processor in which the many screen control of this invention according to claim 2 is possible considers one application window screen displayed on the screen of said Maine display unit in a thing according to claim 1 as the configuration equipped with said single display means to display [ two or more ] on the screen of the sub display unit of a base, respectively.

[0012] Moreover, the information processor in which the many screen control of this invention according to claim 3 is possible is considered as the configuration equipped with a screen selection means to choose one application window screen from two or more application window screens displayed on said Maine display unit by the multi-window function, and an equipment assignment means to specify the sub display unit on which the application window screen chosen by this screen selection means is displayed, in a thing according to claim 1 or 2.

[0013] Moreover, the information processor in which the many screen control of this invention according to claim 4 is possible is considered as the configuration equipped with an equipment assignment means to specify the sub display unit on which the application window screen currently displayed on the field specified by block-definition means to specify the field on a screen as said Maine display unit, and this block-definition means is displayed, in a thing according to claim 1, 2, or 3.

[0014] Moreover, the information processor in which the many screen control of this invention according to claim 5 is possible is considered as the configuration equipped with a transference means to transfer the actuation function of said screen selection means and an equipment assignment means from the Maine display unit to the sub display unit of arbitration, in a thing according to claim 3.

[0015] Moreover, the information processor in which the many screen control of this invention according to claim 6 is possible is considered as the configuration equipped with a transference means to transfer the actuation function of said block-definition means and an equipment assignment means from the Maine display unit to the sub display unit of arbitration, in a thing according to claim 4.

[0016] Moreover, the information processor in which the many screen control of this invention according to claim 7 is possible is considered as the configuration equipped with a contraction/expansion means to reduce or expand the application window screen displayed on the screen of other display units to the sub display unit to which the Maine display unit or the actuation function was transferred, in a thing according to claim 1, 2, 3, 4, 5, or 6.

[0017]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained with reference to a drawing.

[0018] Drawing 1 is the block diagram showing the system configuration of the information processor in which the many screen control of this invention is possible.

[0019] This information processor is fundamentally equipped with the voice-input/output control section 4 for

controlling the input-control section 3 and microphone 4a which control the input of pointing devices, such as a central processing unit 1, the store 2 containing auxiliary storage unit 2a, pen 3a, and tablet 3b, and loudspeaker 4b, and two or more sets of the Maine display unit 21 and the sub display units 22, 23, ..., 24 are connected. Therefore, it has the subdisplay display and control section 8 for controlling the subvideo memory 7 for mapping the Maine video memory 6 for mapping the display and control section 5 for controlling each display unit 21-24, and the contents of a display of the Maine display unit 21, and the contents of a display of the sub display units 22-24, and the sub display units 22-24, these control sections and equipment are bidirectionally connected by a system bus 9 and the video bus 10, respectively, and data communication can be mutually performed now.

[0020] Drawing 2 shows the basic software configuration of the information processor in which the many screen control of this invention is possible.

[0021] Two or more applications 31-33 are controlled by basic software 34, such as OS (operating system). Basic software 34 consists of display control drivers 37 for controlling the other device control driver 36 for controlling the secondary memory driver 35 for controlling a central processing unit 1 and the control device 2 containing auxiliary storage unit 2a, the voice-input/output control section 4, etc., and a display and control section 5, and the display control driver 37 is equipped with the subdisplay control driver 39 for controlling the pointing device control driver 38 and the subdisplay display and control section 8 for controlling the input-control section 3.

[0022] Drawing 3 shows the example of a configuration of the Maine video memory 6. The display information memory area 62 which registers the display information which the sign 61 in drawing shows the memory area of the Maine video memory, and is displayed on the Maine display unit 21, The individual memory areas 63, 64, and 65 which secure all the data displayed by the applications 31, 32, and 33 matched with the application windows 62a, 62b, and 62c displayed into it according to an individual, It consists of a carbon button information memory area 66 which registers the carbon button information for displaying on a screen the manual operation button mentioned later, a memory area 67 which registers the Maine display control information, and a memory area 68 which registers subdisplay control information. However, the contents shown in drawing 3 show the condition of having registered the contents of the example of a display shown in drawing 12 mentioned later.

[0023] Drawing 4 shows the example of a configuration of the subvideo memory 7. The sign 71 in drawing shows the memory area of subvideo memory. The display information memory areas 74, 76, and 78 which register the display information following the header information memory areas 73, 75, and 77 which register the header information of the number corresponding to the connected sub display units 22, 23, and 24, respectively, and these header information, respectively, It consists of memory areas 72 which register subvideo control information including the format information whether the display information registered into which sub display units 22, 23, and 24 in which display information memory areas 74, 76, and 78 is displayed etc. However, the contents shown in drawing 4 show the condition of having registered the contents of the example of a display shown in drawing 9 or drawing 10 mentioned later.

[0024] Drawing 5 is a flow chart explaining the fundamental control action in the information processor of such a configuration.

[0025] If multi-screen-display control action is started, a display and control section 5 will start actuation (step S1), and each applications 31, 32, and 33 of the basic software configuration shown in drawing 2 will be performed by the display control driver 37 through basic software 34. And if modification is shown in a screen display (step S2) (i.e., if refreshed), based on the modification information, the display information after changing into the subvideo memory 7 will be transmitted (step S3). The transmitted display information is stored in the predetermined field in the subvideo memory 7 (step S4). Moreover, the subdisplay display and control section 8 changes a screen display to each sub display units 22, 23, and 24 according to the display information on the subvideo memory 7 transmitted whenever the transfer of the display information on the subvideo memory 7 occurred in the display and control section 5 (step S5). Such processing is repeated until the control action of many screen display is completed (step S6).

[0026] Next, the multi-screen-display control action in the information processor of the above-mentioned configuration is concretely explained with reference to drawing 6 thru/or drawing 12.

[0027] Drawing 6 shows the example which displayed two or more application window screens 21a, 21b, and 21c displayed on the screen of the Maine display unit 21 according to the individual on the screen of each sub



display units 22, 23, and 24, and supports claim 1.

[0028] That is, application window screen 21a is displayed on the screen of the sub display unit 22, application window screen 21b is displayed on the screen of the sub display unit 23, and application window screen 21c is displayed on the screen of the sub display unit 24. In this case, the header information of the sub display unit 22 is registered into the subvideo memory 7 in the header information memory area 73. The information on application window screen 21a displayed on the display information memory area 74 following this by application 31 is registered. The header information of the sub display unit 23 is registered into the header information memory area 75. The information on application window screen 21b displayed on the display information memory area 76 following this by application 32 is registered. The header information of the sub display unit 24 is registered into the header information memory area 77, and the information on application window screen 21c displayed on the display information memory area 78 following this by application 33 is registered.

[0029] Drawing 7 shows the example which displayed one application window screen 21c in two or more application window screens 21a, 21b, and 21c displayed on the screen of the Maine display unit 21 on the screen of each sub display units 22, 23, and 24, respectively, and supports claim 2.

[0030] In this case, the header information of the sub display unit 22 is registered into the subvideo memory 7 in the header information memory area 73. The information on application window screen 21c displayed on the display information memory area 74 following this by application 33 is registered. The header information of the sub display unit 23 is registered into the header information memory area 75. The information on application window screen 21c displayed on the display information memory area 76 following this by application 33 is registered. The header information of the sub display unit 24 is registered into the header information memory area 77, and the information on application window screen 21c displayed on the display information memory area 78 following this by application 33 is registered.

[0031] Drawing 8 shows the example which displayed two or more application window screens 21a, 21b, and 21c displayed on the screen of the Maine display unit 21 according to the individual on the screen of each sub display units 22, 23, and 24, and supports claim 3. Here, if the identifier of D2 and the sub display unit 24 is set [ the identifier of the sub display unit 22 ] to D3 for the identifier of D1 and the sub display unit 23, the title screens 211, 212, and 213 in which it is shown on which sub display units 22, 23, and 24 the screen is displayed are displayed on each application window screens 21a, 21b, and 21c displayed on the Maine display unit 21.

[0032] Namely, (W1=D3) of the title screen 211 It is shown that application window screen 21a (application window identifier W1) is displayed on the sub display unit 24 (subdisplay identifier D3). (W2=D2) of the title screen 212 shows that application window screen 21b (application window identifier W2) is displayed on the sub display unit 23 (subdisplay identifier D2). (W3=D1) of the title screen 213 shows that application window screen 21c (application window identifier W3) is displayed on the sub display unit 22 (subdisplay identifier D1).

[0033] Moreover, the [D1] carbon button 214 currently displayed on the Maine display unit 21, the [D2] carbon button 215, and the [D3] carbon button 216 are carbon buttons which specify which application window screens 21a, 21b, and 21c are displayed on which sub display units 22, 23, and 24. That is, the application window screens 21a, 21b, and 21c displayed on the sub display units 22, 23, and 24 can be specified by using pointing devices, such as pen 3a and tablet 3b, and operating the application window screens 21a, 21b, and 21c and each carbon buttons 214, 215, and 216 by turns. For example, when saying in the example of drawing, as a result of touching application window screen 21a by pen 3a etc. and then touching the [D3] carbon button 216, (W1=D3) is displayed on the title screen 212 of application window screen 21a, and application window screen 21a is displayed on the sub display unit 24.

[0034] Two or more application window screen 21a as which drawing 9 was displayed on the screen of the Maine display unit 21, While displaying the application window screens 21b and 21c according to an individual on the screen of each corresponding sub display units 23 and 24 among 21b and 21c The example which displayed the information on the field (a broken line shows) 71 specified on the screen of the Maine display unit 21 on the screen of the sub display unit 22 is shown, and claim 4 is supported.

[0035] That is, it is shown that the field 71 shown with the broken line all over the display screen of the Maine display unit 21 is a field which chose the information displayed on the sub display unit 22. On the occasion of selection, the field 71 to a location E is specified from the start location S with pointing devices, such as pen 3a and tablet 3b. If the [D1] carbon button 214 is pushed at this time, the information on the field 71 of the Maine

display unit 21 will be displayed on the sub display unit 22. That is, if the [D2] carbon button 215 is pushed, the information on the field 71 of the Maine display unit 21 will be displayed on the sub display unit 23, and if the [D3] carbon button 216 is pushed, the information on the field 71 of the Maine display unit 21 will be displayed on the sub display unit 24.

[0036] The sub display unit 22 shows the example used as the candidate for actuation, respectively, and the example from which, as for drawing 10, the Maine display unit 21 serves as a candidate for actuation, and drawing 11 support claims 5 and 6.

[0037] That is, by operating the [Swap] carbon button 217 and the [D1] carbon button 214 which were prepared on the screen of the Maine display unit 21 shown in drawing 10, as the whole display screen of the Maine display unit 21 shown in drawing 10 shows drawing 11, screen transition (actuation transference) is carried out to the sub display unit 22, and screen transition of the display screen of the sub display unit 22 shown in drawing 10 is carried out at the Maine display unit 21 shown in drawing 11.

[0038] At this time, as shown in the screen of the sub display unit 22 at drawing 11, MD1 which is the identifier of the Maine display unit 21 is displayed on the location which existed under the [D1] carbon button 214 as [MD1] carbon button 214'. Moreover, the sub display unit 22 will work as a Maine display unit in this case, and the Maine display unit will work as a sub display unit. This becomes possible [ that if it was operated on the screen of the Maine display unit 21 operates the display information on other display units 21, 23, and 24 similarly ] by operating it on the screen of the sub display unit 22.

[0039] In addition, screen transition (actuation transference) of the whole display screen of the sub display unit 22 can be carried out to other display units (sub display unit 23) by operating the [Swap] carbon button 217 on the screen of the sub display unit 22, and other carbon buttons (for example, [D2] carbon button 215).

[0040] Two or more application window screen 21a as which drawing 12 was displayed on the screen of the Maine display unit 21, While displaying the application window screens 21b and 21c according to an individual on the screen of each corresponding sub display units 23 and 24 among 21b and 21c The example which displayed the information on the field 71 specified on the screen of the Maine display unit 21 on the screen of the sub display unit 22 is shown, and claim 7 is supported.

[0041] That is, [contraction] carbon button 218 and [expansion] carbon button 219 which reduce the application window screen displayed on the screen of each sub display units 22, 23, and 24, and are expanded beside the [Swap] carbon button 217 prepared on the screen of the Maine display unit 21 are prepared.

[0042] Actuation of [contraction] carbon button 218 and [expansion] carbon button 219 is performed as follows. That is, if [D1] carbon button is operated after operating [contraction] carbon button 218 or [expansion] carbon button 219 (to or actuation and coincidence), the display of the sub display unit 22 will be reduced or expanded. Moreover, after operating [contraction] carbon button 218 or [expansion] carbon button 219, if [D2] carbon button is operated (to or actuation and coincidence), the display of the sub display unit 23 will be reduced or expanded, and after operating [contraction] carbon button 218 or [expansion] carbon button 219, if [D3] carbon button is operated (to or actuation and coincidence), the display of the sub display unit 24 will be reduced or expanded.

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[Translation done.]

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## DESCRIPTION OF DRAWINGS

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### [Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the system configuration of the information processor in which the many screen control of this invention is possible.

[Drawing 2] It is the explanatory view showing the basic software configuration of the information processor in which the many screen control of this invention is possible.

[Drawing 3] It is the block diagram of the Maine video memory.

[Drawing 4] It is the block diagram of subvideo memory.

[Drawing 5] It is a flow chart explaining the fundamental control action in the information processor of this invention.

[Drawing 6] It is the explanatory view showing the example which displayed two or more application window screens displayed on the screen of the Maine display unit according to the individual on the screen of each sub display unit.

[Drawing 7] It is the explanatory view showing the example which displayed one application window screen in two or more application window screens displayed on the screen of the Maine display unit on the screen of each sub display unit, respectively.

[Drawing 8] It is the explanatory view showing the example which displayed two or more application window screens displayed on the screen of the Maine display unit according to the individual on the screen of each sub display unit.

[Drawing 9] It is the explanatory view showing the example which displayed two or more application window screens displayed on the screen of the Maine display unit according to the individual on the screen of each sub display unit.

[Drawing 10] It is the explanatory view showing the condition that the Maine display unit serves as a candidate for actuation.

[Drawing 11] It is the explanatory view showing the condition that one sub display unit serves as a candidate for actuation.

[Drawing 12] It is the explanatory view showing the example which prepared the contraction carbon button and the expansion carbon button on the screen of the Maine display unit.

### [Description of Notations]

1 Central Processing Unit

2 Storage

2a Auxiliary storage unit

3 Input-Control Section

4 Voice-Input/output Control Section

5 Display and Control Section

6 Maine Video Memory

7 SubVideo Memory

8 SubDisplay Display and Control Section

21 Maine Display Unit (Display)

22, 23, 24 Sub display unit (display)

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[Translation done.]

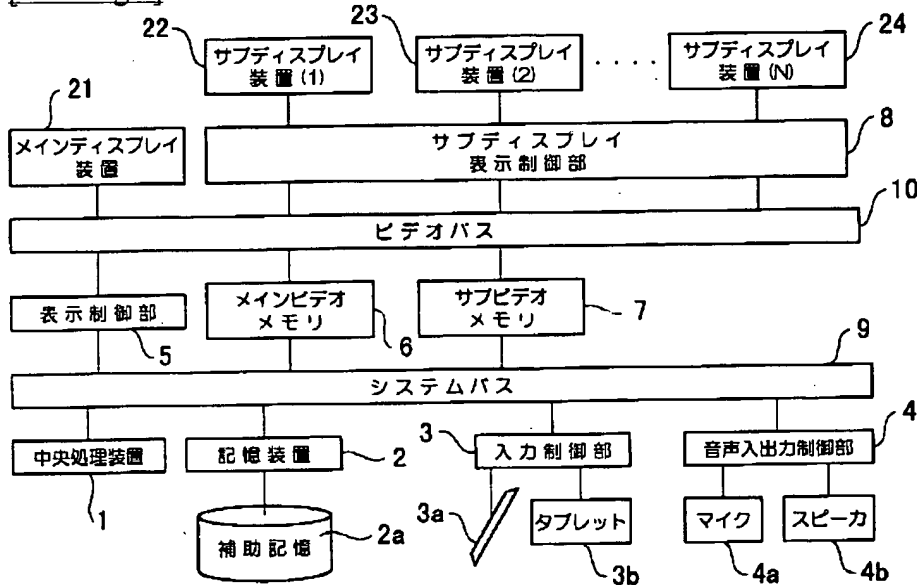
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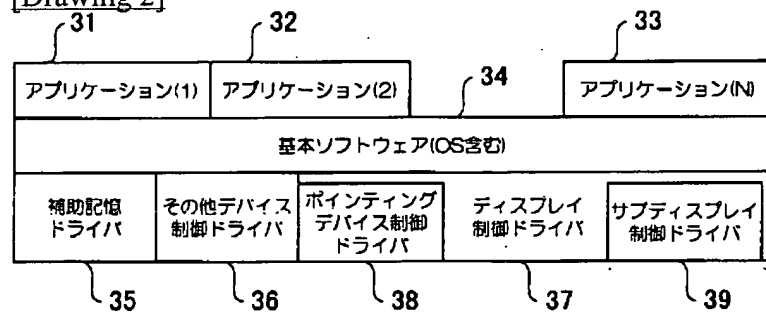
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## DRAWINGS

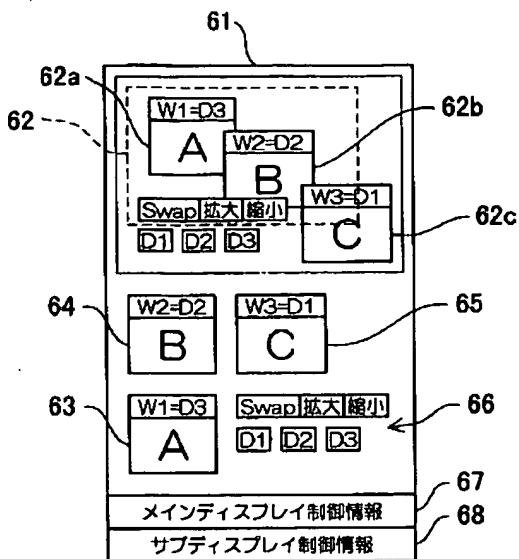
[Drawing 1]



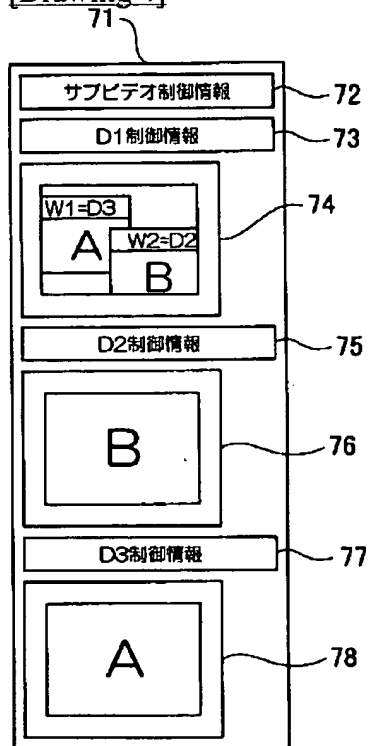
[Drawing 2]



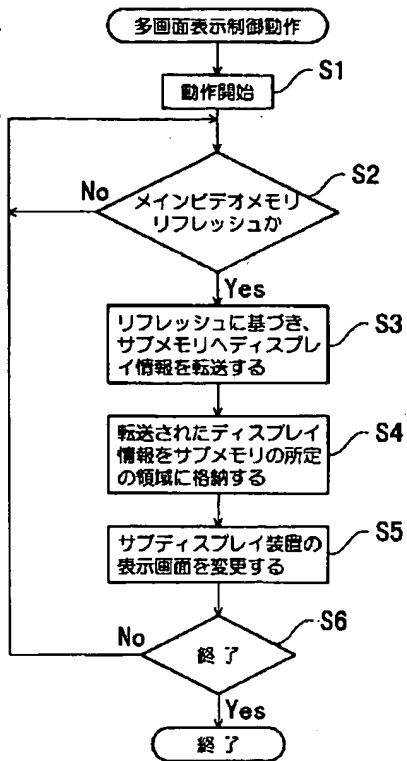
[Drawing 3]



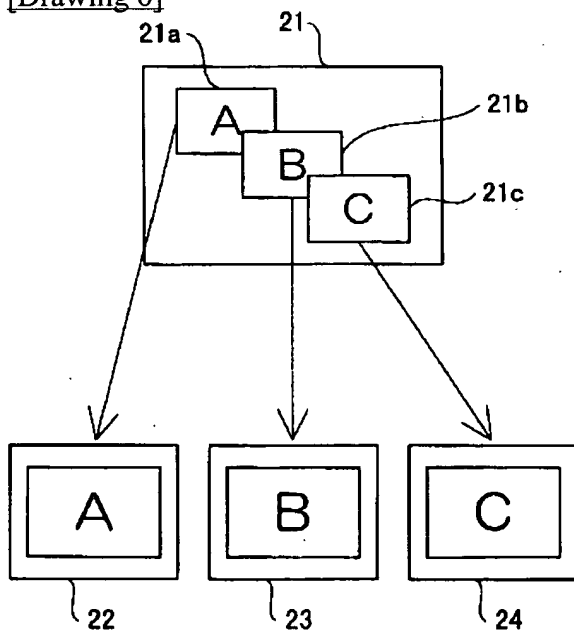
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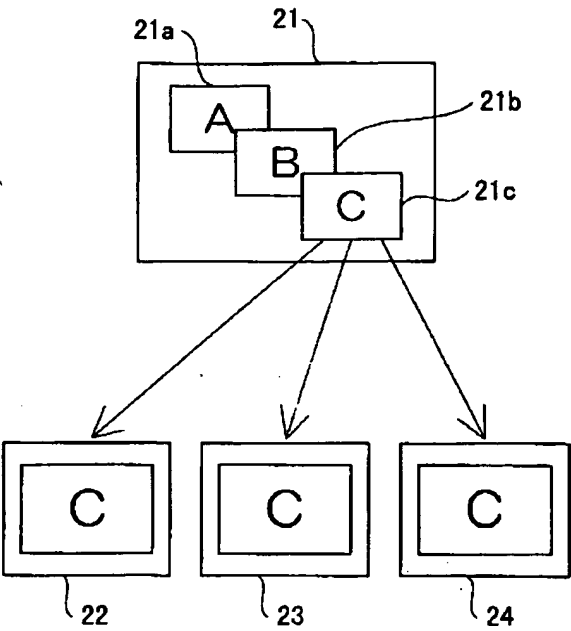
[Drawing 5]



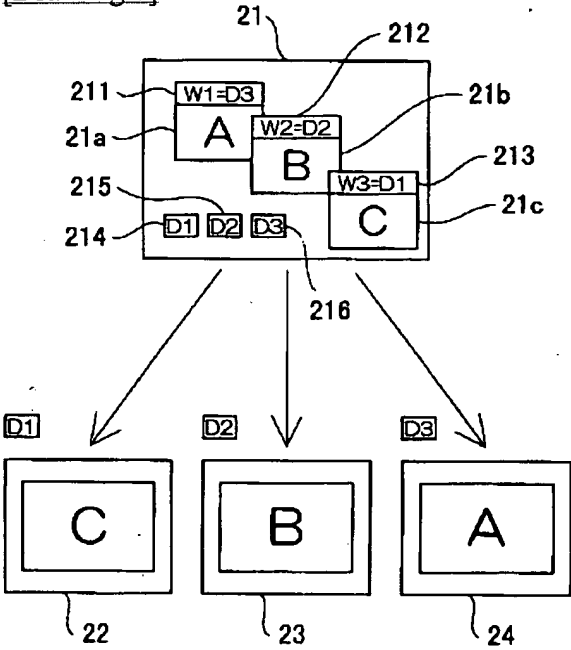
[Drawing 6]



[Drawing 7]

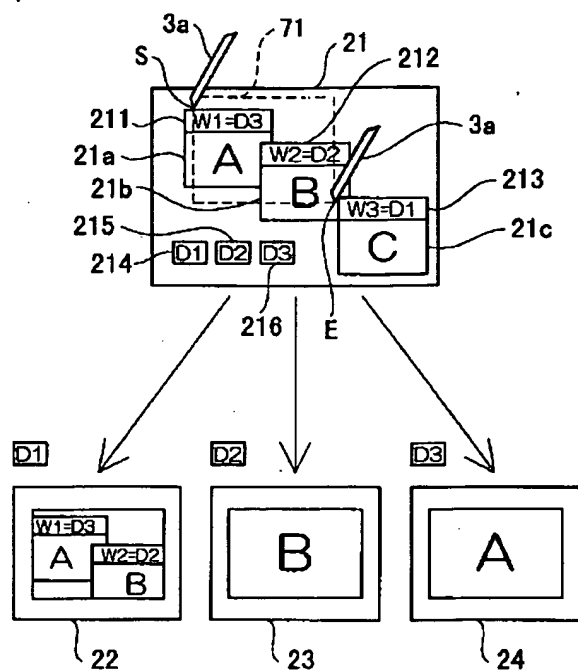


[Drawing 8]

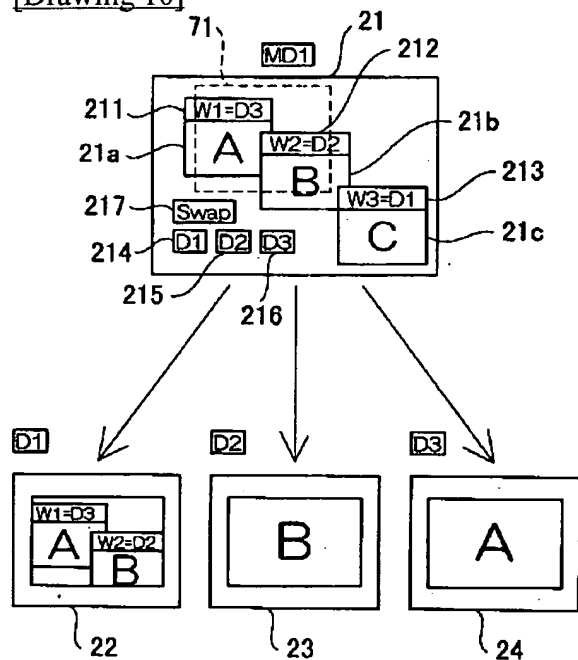


[Drawing 9]

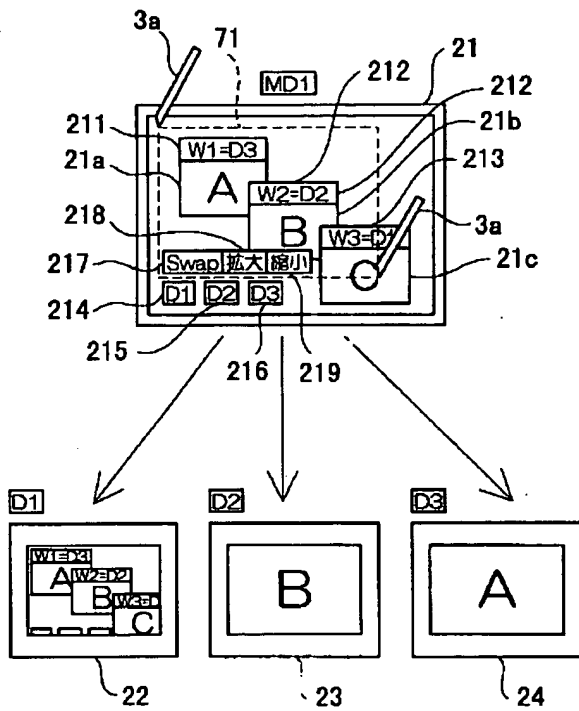




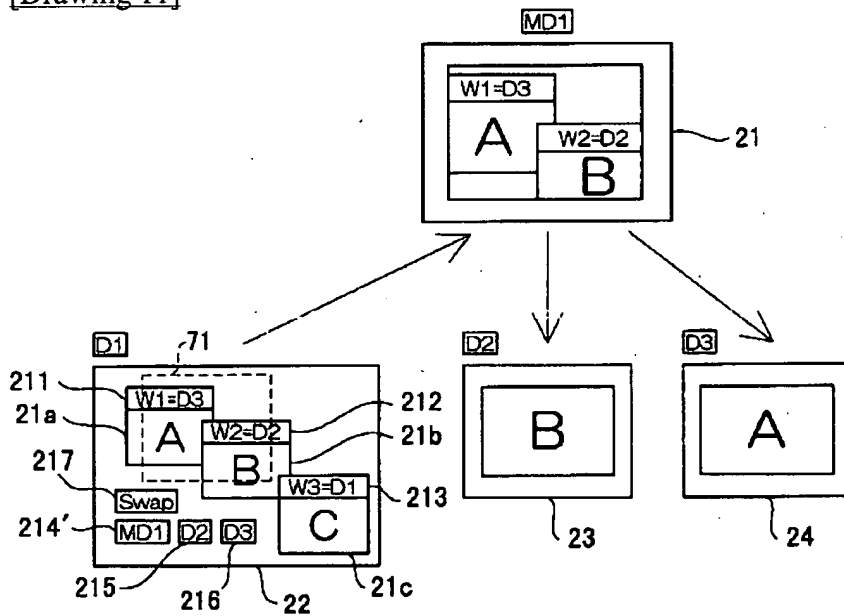
[Drawing 10]



[Drawing 12]



[Drawing 11]



[Translation done.]